

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A heat exchanger, comprising:
a plurality of tubes carrying a first fluid, said tubes running parallel to each other, each of said tubes being separated by a space there between;
said plurality of tubes arranged to have a cross-sectional shape
5 with a first side and a second opposite side;
at least one layer of thermal buffer members on said first side of said tubes, said at least one layer arranged in a direction parallel to said tubes, each of said thermal buffer members being separated by a space there between and wherein each of said thermal buffer members has a diameter
10 larger than the diameter of at least one tube of said plurality of tubes; and
a second fluid passing from said first side to said second side of said plurality of tubes, by first moving around the exterior of said thermal buffer members then by moving past an exterior of said plurality of tubes.
2. (Original) The heat exchanger according to claim 1, wherein said at least one layer of thermal buffer members is one layer of thermal buffer members.
3. (Original) The heat exchanger according to claim 1, wherein said at least one layer of thermal buffer members is at least two layers of thermal buffer members.
4. (Original) The heat exchanger according to claim 1, wherein:

said at least one layer of thermal buffer members is two layers of thermal buffer members; and

said thermal buffer members are composed of a metal.

5. (Original) The heat exchanger according to claim 1 wherein:
said first fluid is relatively cool compressor air; and
said second fluid is engine hot exhaust gas.

6. (Original) The heat exchanger according to claim 1 wherein:
said second fluid is hot engine bleed air; and
said first fluid is cool air, relative to said second fluid.

7. (Original) The heat exchanger according to claim 1, wherein
said tubes and said thermal buffer members are disposed in a linear
arrangement.

8. (Currently Amended) The heat exchanger according to claim
1 wherein:

said plurality of tubes has a first set of tubes and a second set of
tubes running parallel to said first set of tubes;

5 said first set of tubes contacting said second fluid prior to said
second set of tubes; and

wherein each tube of said first set of tubes ~~having~~ has a diameter
larger than each tube of said second set of tubes.

9. (Original) The heat exchanger according to claim 8, further
comprising:

an inner bundle of tubes, said inner bundle of tubes having said
first set of tubes and said second set of tubes;

- 5 an outer bundle of tubes, said outer bundle of tubes having said first set of tubes and said second set of tubes; and
 said first fluid passing through the interior of said outer bundle of tubes and then being directed through the interior of said inner bundle of tubes.

10. (Original) The heat exchanger according to claim 1, further comprising:

 at least one tube support baffle having holes therein, through which said tubes and said thermal buffer members traverse; and

- 5 a spacer support tube, passing through and engaged to said tube support baffle, for supporting and spacing apart said tube support baffle to one another.

11. (Original) The heat exchanger according to claim 1, further comprising a gap in the longitudinal direction of said thermal buffer members, said gap being sufficient size to allow for thermal expansion of said thermal buffer members without exerting stress on said heat exchanger.

12. (Currently Amended) ~~The heat exchanger according to claim 1, wherein:~~ A heat exchanger, comprising:

a plurality of tubes carrying a first fluid, said tubes running parallel to each other, each of said tubes being separated by a space there between;

- 5 said plurality of tubes arranged to have a cross-sectional shape with a first side and a second opposite side;

at least one layer of thermal buffer members on said first side of said tubes, said at least one layer arranged in a direction parallel to said tubes, each of said thermal buffer members being separated by a space there
10 between;

said plurality of tubes and said at least one layer of thermal buffer members both have an annular cross-sectional shape, thereby forming said heat exchanger in an overall annular shape;

15 said at least one layer of thermal buffer members being concentrically disposed inside said annular cross-sectional shape of said plurality of tubes; and

said second fluid passing from an inner region of said annular shape to an exterior of said annular shape first through said at least one layer of thermal buffer members then through said plurality of tubes.

13. (Original) A heat exchanger, comprising:

a plurality of tubes carrying a first fluid internally, said tubes running parallel to each other, each of said tubes being separated by a space there between;

5 said plurality of tubes arranged to have a cross-sectional shape with a first side and a second side;

10 at least one layer of solid thermal buffer members on said first side of said tubes, said at least one layer arranged in a direction parallel to said tubes, each of said thermal buffer members being separated by a space there between;

a second fluid passing from said first side to said second side of said plurality of tubes, by first moving around said solid thermal buffer members then by moving past an exterior of said plurality of tubes; and

15 a gap in a longitudinal direction of each of said solid thermal buffer members located either within said thermal buffer members, thereby creating two thermal buffer members along said longitudinal direction separated by said gap, or at an end of said thermal buffer members, between said thermal buffer members and said heat exchanger, said gap being sufficient size to allow for thermal expansion of said thermal buffer members without exerting stress on
20 said heat exchanger.

14. (Original) The heat exchanger according to claim 13, wherein:
said at least one layer of solid thermal buffer members is two
layers of solid thermal buffer members; and
said solid thermal buffer members are composed of a metal.

15. (Original) The heat exchanger according to claim 14, wherein
said metal is a nickel/molybdenum/chromium alloy.

16. (Original) The heat exchanger according to claim 13, wherein:
said first fluid is relatively cool compressor air; and
said second fluid is engine hot exhaust gas.

17. (Original) The heat exchanger according to claim 13, wherein:
said second fluid is hot engine bleed air; and
said first fluid is cool air relative to said second fluid.

18. (Currently Amended) The heat exchanger according to claim
13, further comprising:

an inner bundle of tubes arranged in a circular configuration, said
inner bundle of tubes having a first set of tubes and a second set of tubes
5 running parallel to said first set of tubes;

an outer bundle of tubes arranged in a circular configuration of
concentric with the configuration of said inner bundle of tubes, but having a
greater diameter, said outer bundle of tubes having said first set of tubes and
said second set of tubes;

10 said first set of tubes of each of said inner bundle and outer
bundle contacting said second fluid prior to said second set of tubes; and

wherein each tube of said first set of tubes ~~having~~ has a diameter
larger than each tube of said second set of tubes.

19. (Original) The heat exchanger according to claim 13, further comprising:

at least two tube support/baffles having holes therein, through which said tubes and said thermal buffer members transverse; and

5 a spacer support tube, passing through and attached to said tube support/baffles, for supporting and spacing apart said tube support/baffles.

20. (Currently Amended) A heat exchanger for transferring energy from a second fluid to a first fluid, comprising:

a first set of tubes disposed adjacent to and running parallel with a second set of tubes, each of said first set of tubes and said second set of tubes
5 carrying said first fluid;

at least two layers of solid thermal buffer members on one side of said first set of tubes, arranged in a direction parallel to said first and second set of tubes;

a gap in a longitudinal direction of said solid thermal buffer
10 members, located either within said thermal buffer members, thereby creating two thermal buffer members along said longitudinal direction separated by said gap, or at an end of said thermal buffer members, between said thermal buffer members and said heat exchanger, said gap being sufficient size to allow for thermal expansion of said thermal buffer members without exerting stress on
15 said heat exchanger;

said second fluid passing first around said solid thermal buffer members then over an exterior of said first set of tubes, then over an exterior of said second set of tubes; and

wherein each tube of said first set of tubes ~~having~~ has a diameter
20 larger than each tube of said second set of tubes.

21. (Original) The heat exchanger according to claim 20, wherein:

said at least two layers of solid thermal buffer members is two layers of solid thermal buffer members; and

said solid thermal buffer members are composed of a metal.

22. (Original) The heat exchanger according to claim 20, wherein:
said first fluid is relatively cool compressor air; and
said second fluid is engine hot exhaust gas.

23. (Original) The heat exchanger according to claim 20, wherein:
said second fluid is hot engine bleed air; and
said first fluid is cool air, relative to said second fluid.

24. (Currently Amended) ~~The heat exchanger according to claim 20, further comprising:~~ A heat exchanger for transferring energy from a second fluid to a first fluid, comprising:

5 a first set of tubes disposed adjacent to and running parallel with a second set of tubes, each of said first set of tubes and said second set of tubes carrying said first fluid, said first set of tubes having a diameter larger than said second set of tubes;

an inner bundle of tubes, said inner bundle of tubes having said first set of tubes and said second set of tubes; and

10 an outer bundle of tubes, said outer bundle of tubes having said first set of tubes and said second set of tubes;

at least two layers of solid thermal buffer members on one side of said first set of tubes, arranged in a direction parallel to said first and second set of tubes;

15 a gap in a longitudinal direction of said solid thermal buffer members, located either within said thermal buffer members, thereby creating two thermal buffer members along said longitudinal direction separated by said gap, or at an end of said thermal buffer members, between said thermal buffer

20 members and said heat exchanger, said gap being sufficient size to allow for
thermal expansion of said thermal buffer members without exerting stress on
25 said heat exchanger;

where in said heat exchanger is of an annular shape, wherein said second fluid passes from an inner region of said annular shape to an exterior of said annular shape first through said thermal buffer members then through said
25 inner bundle of tubes, then through said outer bundle of tubes.

25. (Original) The heat exchanger according to claim 20, further comprising:

at least two tube support/baffles having holes therein, through which said tubes and said thermal buffer members transverse; and

a spacer support tube, passing through and attached to said tube support/baffles, for supporting and spacing apart said tube support/baffles.

26. (Original) A heat exchanger for transferring energy from a second fluid to a first fluid, comprising:

a first set of linear tubes disposed adjacent to and running parallel with a second set of linear tubes, each of said first set of tubes and said second
5 set of tubes carrying said first fluid;

each of said linear tubes in said first set of linear tubes being arranged with a space there between;

at least two layers of linear, solid, rod-shaped thermal buffer members on one side of said first set of linear tubes, arranged in a direction
10 parallel to said first and second set of linear tubes;

each of said thermal buffer members in said at least two layers being arranged with a space there between;

a gap in the longitudinal direction of said solid thermal buffer members located either within said thermal buffer members, thereby creating
15 two thermal buffer members along said longitudinal direction separated by said

gap, or at an end of said thermal buffer members, between said thermal buffer members and said heat exchanger, said gap being sufficient size to allow for thermal expansion of said thermal buffer members without exerting stress on said heat exchanger;

20 at least one tube support baffle having holes therein, through which said tubes and said solid thermal buffer members traverse;

 said holes having a diameter larger than a diameter of said thermal buffer members;

 a spacer support tube, passing through and attached to said tube
25 support/baffles, for supporting and spacing apart said tube support/baffles;

 said first set of linear tubes having a diameter larger than said second set of linear tubes;

 an inner bundle of tubes, said inner bundle of tubes having said first set of linear tubes and said second set of linear tubes;

30 an outer bundle of tubes, said outer bundle of tubes having said first set of linear tubes and said second set of linear tubes; and

 said heat exchanger is of an annular shape, wherein said second fluid passes from an inner region of said annular shape to an exterior of said annular shape first through said thermal buffer members then through said inner
35 bundle of tubes, then through said outer bundle of tubes.

27. (Currently Amended) A method for transferring energy from a second fluid to a first fluid, comprising:

 passing said second fluid through a plurality of tubes;

5 arranging at least one layer of thermal buffer members on one side of said tubes in a direction parallel to said tubes, said thermal buffer members having a diameter greater than said plurality of tubes; and

 passing said first fluid first around said thermal buffer members then over an exterior of said plurality of tubes.

28. (Original) The method according to claim 27, further comprising arranging two layers of thermal buffer members as said at least one layer of thermal buffer members.

29. (Original) The method according to claim 27, further comprising:

choosing relatively cool compressor air as said second fluid; and
choosing engine hot exhaust gas as said first fluid.

30. (Original) The method according to claim 27, further comprising:

arranging said plurality of tubes as a first set of tubes and a second set of tubes running parallel to said first set of tubes, said first set of tubes contacting said second fluid prior to said second set of tubes, and said
5 first set of tubes having a diameter larger than said second set of tubes.

31. (Original) The method according to claim 27, further comprising:

disposing at least two tube support/baffles, having holes therein, through which said tubes and said thermal buffer members traverse; and
5 passing through and attaching a spacer support tube to said at least two tube support/baffles to support and space apart said tube support/baffles.

32. (Original) The method according to claim 27, further comprising providing a gap in the longitudinal direction of said thermal buffer members, said gap being sufficient size to allow for thermal expansion of said thermal buffer members without exerting stress on said heat exchanger.

33. (Canceled)